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Report on Interstate 476 (The Blue Route)

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Report on Interstate 476 (The Blue Route)

Abstract

For fifty years Pennsylvanians have been discussing the idea of constructing a new north-south highway in the central part of Delaware County, the suburban county immediately west of the City of Philadelphia. Such a highway originally was conceived as a parkway. The notion never got very far until the mid-1950's. When the federal Interstate Highway System was conceived, a facility in central Delaware County was proposed to connect the Pennsylvania Turnpike (I-276) in Plymouth Meeting, Montgomery County, with the Delaware Expressway (I-95) in Ridley Township, Delaware County. This facility was designated I-476. As conceived, it would constitute the western part of a planned circumferential freeway network around Philadelphia. I-476 is commonly known as "the Blue Route" and also as the "Mid County Expressway."

As an interstate highway project, 90% of the cost of I-476 would be covered by federal interstate highway funds allocated to the Pennsylvania Department of Transportation (PennDOT) by the Federal Highway Administration (FHWA). The remaining 10% of the project's cost would be paid for by PennDOT (either construction bonds or revenues from the State Motor Fund).

Construction of the Blue Route commenced in 1967 but all construction on the main stretch of the road--the 16.9 mile section between I-95 and the Schuylkill Expressway (I-76)--was halted in 1973. Construction of this portion cannot resume until the project undergoes an environmental impact assessment under the provisions of federal law. The project also must undergo a so-called 4(f) assessment analyzing the facility's impact on parkland and historical resources. The requirements of these federal statutes are summarized in an appendix to this report.

Because of the uncertainty surrounding completion of the Blue Route, and because the project has aroused considerable controversy in Delaware County, U.S. Representative Robert W. Edgar in March 1977 organized a "Transportation Advisory Committee" to undertake a comprehensive analysis of the project. [...] This report is submitted to the Congressman as the Committee's recommendation.

Disciplines

Engineering | Systems Engineering | Transportation Engineering

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Congressman Robert W. Edgar
7th District, Pennsylvania

TRANSPORTATION ADVISORY COMMITTEE

Vukan R. Vuchic, Ph.D., Chairman
Carl Chandler
William K. Davis, A.I.C.P.
Jack Smyth, P.E.
Peter Weber
David Williamson

REPORT ON INTERSTATE 476

(The Blue Route)

February 1979

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SECTION 1. PREFACE

1.1 Description and Status

For fifty years Pennsylvanians have been discussing the idea of constructing a new north-south highway in the central part of Delaware County, the suburban county immediately west of the City of Philadelphia. Such a highway originally was conceived as a parkway. The notion never got very far until the mid-1950's. When the federal Interstate Highway System was conceived, a facility in central Delaware County was proposed to connect the Pennsylvania Turnpike (I-276) in Plymouth Meeting, Montgomery County, with the Delaware Expressway (I-95) in Ridley Township, Delaware County. This facility was designated I-476. As conceived, it would constitute the western part of a planned circumferential freeway network around Philadelphia. I-476 is commonly known as "the Blue Route" and also as the "Mid County Expressway."

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Construction of the Blue Route commenced in 1967 but all construction on the main stretch of the road--the 16.9 mile section between I-95 and the Schuylkill Expressway (I-76)--was halted in 1973. Construction of this portion cannot resume until the project undergoes an environmental impact assessment under the provisions of federal law. The project also must undergo a so-called 4(f) assessment analyzing

the facility's impact on parkland and historical resources. The requirements of these federal statutes are summarized in an appendix to this report.

1.2 Role of the Transportation Advisory Committee

Because of the uncertainty surrounding completion of the Blue Route, and because the project has aroused considerable controversy in Delaware County, U.S. Representative Robert W. Edgar in March 1977 organized a "Transportation Advisory Committee" to undertake a comprehensive analysis of the project. In contacting potential members of the Committee, Rep. Edgar wrote,

I must react to a pile of conflicting data and opinion concerning the wisdom of proceeding with this project. Both sides make convincing arguments. Our options are plentiful: we can proceed with the project as designed; we can proceed with a modified design; we can scrap the project and apply the federal funds to alternative transportation investments, and so forth. To help me evaluate these options, I am assembling a small group of advisors who will gather evidence and opinions, discuss them, and develop a recommendation on how best to solve this problem.

This report is submitted to the Congressman as the Committee's recommendation.

1.3 Committee Membership

The Committee is chaired by Dr. Vukan R. Vuchic, Professor of Transportation Engineering, University of Pennsylvania. Dr. Vuchic has extensive experience in the evaluation and design of both highways and public transportation facilities. Serving with Dr. Vuchic are Jack Smyth, P.E., a consulting engineer specializing in highway and urban transportation design; William K. Davis, A.I.C.P., a community planner with over 21 years of planning and urban design experience in

both the public and private sectors; Carl Chandler, an architect and historic preservation specialist long active in community affairs; and Peter Weber, an urban planner who has made an extensive, independent investigation of this project while completing graduate work in planning at the University of Pennsylvania. David Williamson, Legislative Assistant to Rep. Edgar, has served as the group's liaison with the Congressional office and with public agencies. Each member of the Committee--except for Mr. Williamson in his official role--has served as a volunteer.

1.4 Scope of the Report

The report is based on the Committee's analysis of I-476 over a period spanning nearly two years. The I-476 draft and final environmental impact statements (EIS), with accompanying basis reports, were analyzed in great detail. Further data was obtained from PennDOT. In addition, the Committee interviewed several groups and individuals on both sides of the debate including the Chester Group, probably the project's most active proponent, and the Regional Transportation Alliance, the most active opponent.

The report is divided into five sections:

1. Preface
2. I-476 Planning: Transportation Aspects
3. I-476 Planning: Other Aspects
4. The Committee's Findings
5. The Committee's Recommendations.

In addition, an executive summary of the report has been prepared. Additional material on federal statutes pertaining to the review of this project has been appended to the report.

SECTION 2. I-476 PLANNING: TRANSPORTATION ASPECTS

2.1 Network Aspects

The I-476 corridor is located in the western suburbs of Philadelphia. The Philadelphia metropolitan area is the nation's fourth most populous, with approximately 5,200,000 persons* residing within an area of 3800 square miles. Figure 2-1 (next page) illustrates how I-476 fits into the existing and planned regional freeway network. The heavy black lines denote operational freeways; the dotted lines denote freeways that are either under construction or on the regional highway improvement program. The routes labeled "remaining facilities" are freeways that were proposed in the Delaware Valley Regional Planning Commission's 1985 Transportation Plan but which are no longer under active consideration.

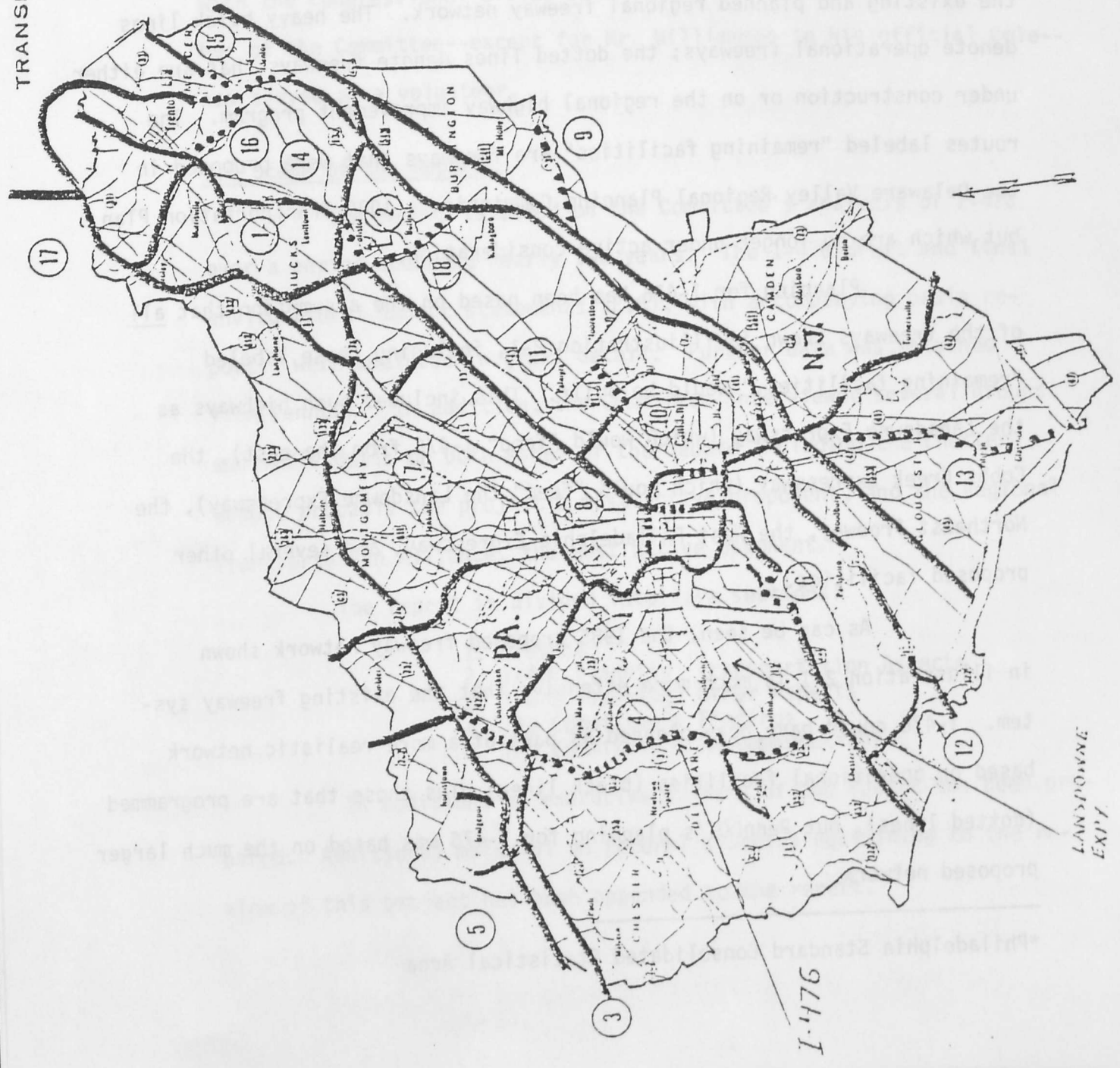
Planning for I-476 has been based on the assumption that all of the freeways shown in illustration 2-1, including those labeled "remaining facilities," would be built. This includes such highways as the Lansdowne Expressway (which would "feed" I-476 from the east), the Cobbs Creek Expressway (which would "feed" the Lansdowne Expressway), the Northeast Freeway, the West Philadelphia Expressway, and several other proposed facilities.

As can be seen, the 1985 proposed freeway network shown in illustration 2-1 is much more extensive than the existing freeway system. I-476 could have been planned as part of a more realistic network based on operational facilities (black lines) plus those that are programmed (dotted lines), but PennDOT's planning for I-476 was based on the much larger proposed network.

*Philadelphia Standard Consolidated Statistical Area

TRANSPORTATION IMPROVEMENT PROGRAM 1985 FREEWAY PLAN

- EXISTING
- UNDER CONSTRUCTION
- PROGRAMMED (FY 79-84)
- REMAINING FACILITIES
planned but not programmed



I-476

LANSDOWNE
EXPI

Planning for I-476 also has been considered in the context of the DVRPC's 1985 Adopted Transit Network, which includes such projects as the Center City Commuter Rail Connection, extension of the Broad Street Subway to Pattison Avenue, and the Lindenwold Hi-Speed Line. All of these projects are either completed or under construction. Not included in the 1985 transit network (when I-476 was planned) were the Airport Rail Line, which is under construction, and two extensions of the Lindenwold Line in New Jersey, for which active planning has commenced.

As can be seen, DVRPC's 1985 Transportation Plan favored construction of an extensive freeway network (most of which will not be built) and a rather limited transit network that excluded projects that are now taken seriously.

Because the EIS does not present traffic data for the overall Adopted Highway Network, it is difficult to comment on the Blue Route's relative importance as a constituent part of the planned regional highway system. This lack of data also makes it difficult to determine the precise effect that reducing the size of the proposed freeway network will have on the traffic volumes assigned to I-476.

2.2 Traffic Volume Projects: Methodology and Results

DVRPC provided PennDOT with 1980 and year 2000 traffic projections for five alternate plans examined in the EIS:

- | | |
|----------|---|
| Alt. A-1 | Full construction of I-476 |
| Alt. A-2 | Construct I-476 but delete PA 3 interchange |
| Alt. A-3 | Construct I-476 but delete US 30 interchange |
| Alt. A-4 | Construct I-476 but delete both U.S. 30 and PA 3 interchanges |
| Alt. A-5 | No Build |

As noted above, projections for the year 2000 assume completion of the entire DVRPC 1985 proposed freeway network. The traffic projections for 1980 exclude the Lansdowne Expressway from the network.

It appears that the year 2000 projections were obtained by use of computer assignments for the year 1995, projected to year 2000 at a modest increase. The projections for 1980 were obtained by interpolating the 1995 assignments and earlier DVRPC assignments. The computer models are based on 1960-to-1970 trends in population, auto ownership, employment, and other relevant factors. 1975 census estimates for the Philadelphia metropolitan area show that these 1960-to-1970 trends (during that decade, the regional population grew by over 500,000) no longer hold true; most forecasts now show the region's population remaining static at approximately 5,200,000 and slight population losses are probable in the short run.

--Results of Projections--

The Blue Route is projected to carry an extremely high volume of traffic. According to the EIS, 100% of the roadway will be at "jam" conditions (level of service "F") in the design year, 2000. The magnitude of these projections is shown in Table 1, which compares the traffic volume projections for I-476 (Alternate A-1, year 2000) with the latest annual volume counts on existing roads in the same corridor (routes 320, 252, 420, and several other north-south roads that parallel respective sections of the Blue Route as proposed).

Table 1. Projected increases in corridor traffic volumes with I-476 (net increase over existing volumes)

I-476 section year	I-76 - US 30 - PA 3 - Blt. Pike - MacDade			
	I-76	US 30	PA 3	Blt. Pike - MacDade
1980	+220%	+340% max.	+ 90% max.	+65% max.
2000	+300%	+525% max.	+170% max.	+90% max.

Thus I-476 is projected to carry up to six times (+525%) the traffic now handled by existing roads. Some explanations for these dramatic projections:

1. Unrealistically high growth rates for population, households, auto ownership, etc. were used for projections (for instance, DVRPC predicted a 1985 regional population of 6.5 million but recent data indicate that a 5.5 million figure is more likely);

2. Total future traffic was overestimated due to the use of a model including several freeways which will not be operational in the design year (many, in fact, will likely never be built). The "multiplier effect" created by one freeway feeding another can be seen in the following traffic projections contained in the EIS: the following Av. Annual Daily Traffic (AADT) volumes for I-476 are projected at the three following locations--

Table 2.

A-1	at I-76	at Lansdowne Expy.	at I-95
I-476 1980 AADT	60,300	55,300	67,700
I-476 2000 AADT	77,500	93,700	82,000

Table 2 shows that during the period 1980-2000, traffic on I-476 will increase by 28% and 21% respectively at the facility's end points (I-76 and I-95) but traffic in the central portion of the facility--where it is "fed" by the proposed Lansdowne Expressway--increases by 69% over this same period. This is due to the fact that the Lansdowne Expressway is not a part of the computer model for 1980, but it is a part of the year 2000 model. Consequently, the initially-planned 1985 freeway network must have had a major impact on the I-476 volumes predicted for year 2000. Testing I-476 on a more realistic model network should result in more manageable traffic volume forecasts.

3. Year 2000 peak hour design factors used for I-476 were: K = 11% and D = 60%. The Committee's analysis shows that actual values for existing freeways and arterial roadways in the region are: for K, between 7.0% and 8.5%

(average 8.12%): for D, between 53% and 60% (average 54.6%). Use of these more typical peak-hour design factors would have resulted in a 25% to 35% reduction in the design volumes.

2.3 Consideration of Other Modes

While the initial planning of I-476 did not include considerations of other modes, specifically public transportation, the EIS states that it has examined this "alternative" and found it infeasible. This analysis consisted of the following independent items.

--A test was made whether a Lindenwold-type rapid transit line would be a feasible alternative to construction of I-476. It is difficult to understand the rationale for this test. Rapid transit is a mode totally unsuitable for an outlying circumferential route: nowhere in the world is there a rapid transit line with such an alignment. The predictably negative result of the study therefore by no means implies that all transit services would be infeasible. Nor is it correct to treat public transportation as a total substitute for I-476; rather, public transportation should be considered as an integral component of the total transportation solution in the corridor.

--The EIS noted interest by the Southeastern Pennsylvania Transportation Authority (SEPTA) in the use of the facility for bus trips; however, no design changes are proposed to accommodate and promote such use.

--The EIS proposes construction of two large park-and-ride facilities: in Radnor (2,027 spaces to serve the Paoli-Philadelphia commuter rail line and the Norristown light rail line), and in Crum Lynne (1,856 spaces, serving the Wilmington-Chester-Philadelphia line). Paradoxically, no direct

access from I-476 to these facilities is proposed; their funding is not included in the funding for I-476. It is therefore difficult to see any direct connection between I-476 and the Park-and-Ride lots.

--The EIS claims that I-476 will facilitate access of transit buses to commuter rail stations, such as Wallingford on the Media Line. Since I-476 does not have any interchange in the vicinity of this station, the proposed access is physically impossible without an extremely long detour through narrow residential streets. There are no special provisions for any contacts between buses and any of the other four radial rail and several bus lines I-476 crosses. Such connections could be extremely useful for creating a network of coordinated transit services in the areas surrounding this highway.

Possibilities of providing a transit right-of-way within I-476 on some of its sections, which could be utilized by buses or light rail lines, have not been considered in the planning of this facility. Provisions for bus stops along I-476 were not mentioned either.

All these possibilities for incorporating transit services into I-476 planning and design for creation of an integrated multi-modal facility would be much more realistic than the consideration of a high-capacity rapid transit facility as a complete alternative to the freeway.

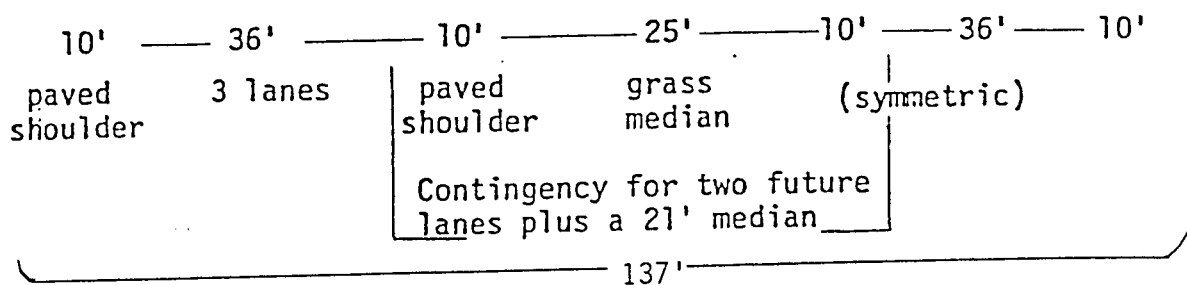
A freeway going through residential and recreational areas should provide special facilities for pedestrian grade-separated crossings wherever there is a need for such connections. Each transit stop along the freeway also requires a pedestrian over- or underpass. No such facilities have been mentioned in the EIS.

In conclusion, the planning of I-476 was strictly limited to the physical aspects of the highway and the facilities directly affected by it. The recent trends toward full consideration and integration of different

modes have not had a meaningful influence on the design of I-476: its design has followed the approach typical for highway planning in the 1950's.

2.4 Scale of the Design

The final EIS shows a typical cross section of I-476, with a net minimal width of 137 feet from outside shoulder to outside shoulder (total right-of-way width will range from 314 feet to 700 feet). The design contains the following elements:



The two 10' median shoulders, together with the 25' grass median, form enough space to add two future lanes of traffic plus a 21' median (intended for median shoulders, plus a barrier).

The EIS does not mention *design standards* but the Committee has learned that Class I Rural Standards have been employed. These rural standards are compared, below, to PennDOT's urban/suburban design standards.

	<u>Rural Standards (Used for I-476)</u>	<u>Urban/Suburban Stds.</u>
Minimum Design Speed	70 MPH	60 MPH Suburban 50 MPH "Downtown"
Max. horizontal curvature	3° 30'	7°
Maximum Gradient	3 %	4% Suburban 5% "Downtown"
Min. Median Width	36 feet	6 feet, w/ barrier

These rural standards for cross-section and alignment cause excessive land-taking and make highway construction extremely disruptive and expensive. The urban/suburban design criteria described above* are considerably more flexible and would be much more suitable for I-476 considering the restricted built-up areas it goes through and the corridor's steep-sloped stream valley setting.

The same problem of excessive land taking exists with several of the proposed interchange designs. While the design of the interchange with Route 30 has been significantly reduced in size and complexity from the Draft proposal, full or partial cloverleafs are still planned for the interchanges with Pa. Route 3, Baltimore Pike, and MacDade Boulevard. The cloverleaf nature of these designs is reflective of the general, non-urban design strategy used for I-476. These interchanges, as proposed, are too land-intensive and their capacity is rather limited. Cloverleafs do permit a free flow of traffic onto the intersecting roadway, but this benefit is unnecessary in these cases considering the fact that the intersecting arterials themselves are signalized and congested and do not have free-flowing traffic conditions.

2.5 Impact on Other Transportation Facilities and Modes

The EIS presents considerable data on the impact I-476 will have on the traffic volumes of three *parallel* highways, PA Routes 320, 420, and 252. These data are partly based on DVRPC's 1985 planning models which, as we have mentioned above, are now outmoded. Because of the lack of dependable data, and in light of the fact that traffic forecasting is an imprecise art at best, we can offer only some common sense predictions about the impact I-476 will have on the traffic volumes of other facilities.

*these urban/suburban standards, according to PennDOT itself, are applicable to projects within urbanized areas over 50,000 population.

PA 320 experiences a serious congestion problem north of PA 3 (West Chester Pike) and again north of US 30 (Lancaster Pike) during the morning and evening rush hours. By and large, this is traffic headed to or from the growing employment centers around the King of Prussia area. I-476 will provide significant relief to these major congestion problems. PA 320 also experiences congestion in Swarthmore near its intersection with Baltimore Pike (site of a major regional shopping mall opened since completion of the Draft EIS), and also in the vicinity of its interchange with US 1 (State Road/Media By-Pass). I-476 should relieve these congestion problems but it will not eliminate them, especially during peak shopping periods.

PA 420 is further from I-476 than PA 320 is and the new freeway will give this facility less general traffic relief. However, the Committee is concerned that PA 420 will become seriously overburdened with traffic once I-95 is completed through the airport area and up to central Philadelphia. Without I-476, PA 420 will provide residents of central Delaware County their main access to I-95...a role it cannot perform, given its very limited capacity (it is mostly a two-lane road). I-476 will provide high-speed, high-capacity access to I-95 and the impending problem of congestion on PA 420 would be avoided.

Those highways that *intersect* I-476 will experience significant increases in traffic. The Committee expects that MacDade Boulevard, a four-lane roadway, will be able to handle the added traffic but only if it is properly regulated. For instance, many of MacDade Boulevard's intersections have yet to be channelized to facilitate left-hand turns. Baltimore Pike is already heavily congested owing to extensive strip commercial development,

including major regional shopping malls. Congestion will become worse once this road is used by motorists seeking access to I-476. This problem will be difficult to solve since Baltimore Pike already has been modernized to some extent; further capacity improvements might be quite expensive. This issue demands the earliest possible attention by county, regional, and State officials responsible for highway planning and management. The Media By-Pass (U.S. 1) will become more heavily travelled with completion of I-476 and the Final EIS predicts congestion in the interchange area; it follows that design of this interchange--with attendant reconstruction of U.S. 1 in the interchange vicinity--must be given extra careful attention. Traffic on PA 3 (West Chester Pike) also will become heavier with the introduction of an interchange with I-476. Despite good capacity, traffic here is congested and the level of service "F" condition will remain unchanged. US 30 (Lancaster Pike) is the arterial highway that will experience the greatest increases in traffic as a result of the introduction of I-476; the problem is expected to be so serious, there has been considerable discussion of deleting this interchange from the plan for I-476. The Committee believes that every attempt must be made to include this interchange in the design. To relieve pressure on this interchange, PennDOT should, at the very least, test the idea of introducing a simple diamond interchange at I-476's overpass at Bryn Mawr Avenue and, perhaps, at Darby Road. The idea of building a U.S. 30 by-pass in the Wayne area also might have to be reviewed. In any event, any solution is likely to strike a sensitive nerve in the community. Their participation in solving this interchange problem should be sought out by PennDOT before the design is finalized.

Public Transportation facilities in the corridor area are extensive; for the most part, they serve commuters bound for central Philadelphia. I-476 will provide a high-speed connection to I-95 which eventually will be completed through the eastern portion of Center City. Use of the I-476/I-95 routing by

commuters bound for Center City may divert passengers from public transportation. This would be a highly undesirable occurrence. To prevent this from happening, a combination of positive transit investments and auto-use disincentive strategies will be needed.

On the positive side, I-476 can be designed to interface with several of the radial rail transit lines in the corridor: one park-and-ride lot can serve both the Paoli commuter rail line and the "P & W" light rail line to Norristown. Such a park-and-ride facility is proposed by PennDOT but no direct connection to I-476 would be provided. The lot probably would be ineffective without such direct connection. Another major regional park-and-ride facility is proposed in Eddystone to serve the Chester commuter rail line; again, no direct connection to I-476 is provided. In this case, making a direct connection may be difficult and the Chester commuter service may not be attractive enough to draw passengers. Five minutes away from the junction of I-476 and I-95, a new rail transit line is being built to the airport; PennDOT may wish to consider linking the airport line with I-95 instead of building a facility along the Chester line. A lot serving the Media line should be fully considered.

On the negative side, the particular problem of diversion from transit to I-95 could be solved by automotive disincentive policies such as parking surcharges during the morning entry hours. This way, the morning commuter would continue to use transit but the improved highway access (I-476/I-95) would be available for other trips to center city, such as nighttime entertainment trips.

Small changes in the design of I-476, such as construction of bus-stop areas and accompanying pedestrian underpasses or overpasses, will permit effective use of I-476 for express bus service. Park-and-ride lots also could serve as stations for paratransit (e.g. vanpooling) to serve the major

"campus type" office and industrial complexes found in the Valley Forge area.

2.6 National Trends in Highway Planning Methodology

Major changes have occurred in both approach to highway planning and evaluation of highway projects during the last 10-15 years. The changes most relevant to this project, which has been planned during this time period, are the following ones.

Planning of individual facilities based on extrapolation of past trends has been replaced by consideration of not only trends, but desirable directions of future developments. Plans are thus aimed not necessarily at stimulation of past trends, but primarily at achievement of a higher quality transportation system or of the urban area in general.

Highways have been increasingly seen not as independent entities, but as portions of entire urban transportation systems; these systems, in turn, as components of total urban systems, including their economy, social character and environment.

Increasing attention has been given to full utilization of existing as well as new highways. The formerly common practice of constructing new freeways while existing highways have inadequate design and obsolete traffic engineering, has been strongly criticized. Programs such as TOPICS¹ and TSM² reflect the desire of the Congress and DOT to achieve full utilization of existing transportation facilities in order to achieve the maximum efficiency and avoid unnecessary investments.

-
1. TOPICS--low cost improvements to increase capacity and safety, such as adding left-hand turn lanes and signals at intersections.
 2. TSM--transportation system management projects, e.g. coord. of traffic signals.

Separate planning for highways and transit facilities has been replaced by joint consideration of both modes. In planning of new highways operational requirements and special facilities for public transit are now being included. Preferential treatment of transit vehicles over other traffic has been introduced on many highways across the country. The goal is to treat highways and transit as one integrated system.

The increasing concern for negative environmental impacts of transportation facilities and the need for conservation of resources (particularly fuel) have had a direct impact on highway design practices and standards. The National Environmental Policy Act and the national speed limit of 55 mph have created pressures to moderate geometric standards and to reverse the continuous trend toward larger, wider, often overbearing freeways and interchanges.

Due to the recognition of the great number of influencing factors, evaluation methodology for highways has become much more comprehensive. It includes not only a great number of environmental considerations, but also the impacts of the new facility on local streets and highways, on public transportation, on travel patterns and on urban form.

Greater flexibility of funding procedures has reduced the incentives to fit projects to the most favorable available funding.

3. I-476 PLANNING: OTHER ASPECTS

This section presents the Committee's perception of the facility's non-transportation impacts. The social and economic consequences, and the anticipated physical (man-made) and natural environmental changes wrought by the project, are addressed. Some impacts will range well beyond the specific transportation corridor in that the highway will change regional transport and commuting patterns in addition to patterns of human settlement and land preservation.

3.1 Community Development

The facility will necessitate some housing relocations and reduction in the housing stock of the corridor area, as described by PennDOT in the EIS. Such relocations are inevitable when constructing a major highway facility in a densely-settled urban county of approximately 600,000 persons. The loss of fewer than 400 housing units through direct and indirect effects--although difficult for those directly involved--constitutes a minor impact in the overview, especially considering generous federal relocation and reimbursement policies. (See Table IV-50, "Socioeconomic and Land Use Basis Report").

During the long period of this project's planning, the nation endured an unpopular war, social upheaval, and a major recession--all of which contributed to changes in marriage patterns, birthrates, lifestyles, and so forth. The final EIS, although issued in 1977, reflects 1973 population estimates and, in many respects, is based on data compiled by the Delaware Valley Regional Planning Commission in the 1960's during its preparation of the 1985 Comprehensive Plan. Much of this socioeconomic data are

now obsolete. The deficiency of the EIS is even more dramatic when it discusses employment data. It utilizes 1970 employment figures and ignores job losses incurred since that date, such as a sharp decline in defense-related employment at the Boeing Vertol Company (from 12,500 to 3,500) and plant shutdowns such as FMC Corporation's Viscose Unit (700 jobs). Therefore, statements on employment such as are found on page I-16 of the Socio-economic and Land Use Basis Report, to the effect that the manufacturing sector in Delaware County is expected to remain strong, represent inaccurate judgments.

Predicting the impact of such a major facility on community development in the region cannot be done quantitatively; professional judgment must be used. Many urban development specialists have noted that improved transportation within a given urban corridor will tend to strengthen those areas in the corridor that are economically strong, and weaken those areas in corridor that are economically weak. This rule cannot be applied rigidly to I-476, but it does apply in general sense, in our view.

The residential areas of the corridor, from Ridley Township up through central Delaware County all the way to the Schuylkill Expressway, are in excellent health; in many communities, the housing stock is unusually attractive and reasonably priced. The value of this housing should increase over time by completion of I-476 because the corridor communities will be able to serve a broader number of employment centers in the Philadelphia suburbs. Currently, poor transportation limits Delaware County's role in serving as a "bedroom community" for the industries and offices located in the King of Prussia area and in the northern suburbs along I-276.

The office/commercial areas found in the corridor--at U.S. 30 (Radnor-St. Davids), along Pa. 320 in Lawrence Park, along Baltimore Pike from Media to Springfield--will be given improved regional access by I-476 a

as a result, these commercial centers should benefit from completion of the expressway. The potential development of these areas may be constrained by local zoning policies; opposition to additional office development already has surfaced in some corridor communities. These are matters best left to local communities and they fall outside the scope of the federal decision on this project.

Little industrially-zoned land is available along the corridor. Such land does exist near the end points of the facility, however: along the Delaware River Waterfront (I-95), in the King of Prussia Area (I-76) and in the Plymouth Meeting area (I-276). The latter two areas, which are already relatively healthy, are more likely to benefit from I-476 than southern Delaware County is, if the general rule of urban development we have cited holds true. The higher cost of land along the Delaware River Waterfront is the most important factor in this prediction. This outcome can be changed if government encourages development in the Waterfront area via public sharing of some of the development costs. Similarly, the effect can be avoided if local government uses zoning powers to constrain additional industrial development in King of Prussia and around Plymouth Meeting.

The Committee has heard from several corporate officials based in southern Delaware County who believe that, by improving truck movement between the Turnpike area and I-95, I-476 will reduce their transportation costs. The Committee has no reason to dispute this forecast. The Committee does believe, however, that the facility's benefits to industries in Chester will be limited unless I-95 is better connected to the local street system there. Thus far, PennDOT has yet to approve a proposal to install

new on-off ramps where Edgmont Avenue passes over I-95 in Chester.

Some political figures and labor leaders have expressed a belief that the Blue Route, once completed, will create 10,000 permanent new jobs. The Committee finds no basis whatsoever for this belief. The facility will have a positive on-shot economic impact owing to construction, but any other employment benefits to be generated will be very long term and probably minor in scale. The EIS concurs with the Committee's views on this.

With regard to the relationship between the chosen alignment for the Blue Route and general community development, to move the present alignment eastward would result in substantial neighborhood disruption and hundreds, perhaps thousands, of condemnations and other takings. To move the alignment westward would put the highway in the urban fringe, where there is a considerable amount of vacant, undeveloped land; the resulting sprawl-type development would be highly undesirable in terms of sound regional growth, and highly inconsistent with federal policies encouraging the conservation of older, existing urban communities.

3.2 Noise and Air Pollution

Design work is still needed relative to noise control and barriers. The final EIS points to serious noise impacts in 22 of the 24 noise study areas; the final EIS further indicates that all but three of these noise impacts can be mitigated (to meet FHWA standards) by extensive use of 8' and 12' concrete noise barriers. The Committee is greatly concerned that too many of these barriers will be incorporated into the final design of the Blue Route; such barriers are extremely expensive and aesthetically offensive. The development of more reasonable and responsible traffic volume projections should permit intensive exploration of alternative solutions to the

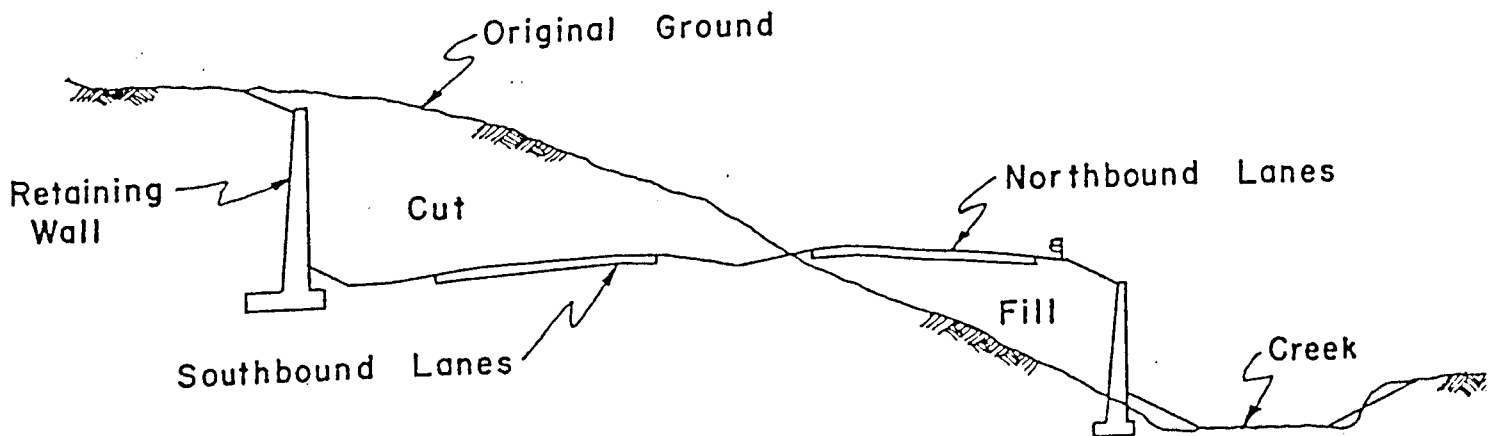
noise problem. Planting of various types of heavy vegetation along the roadway should be considered to reduce noise and to minimize sound reflection. A general scaling-down of the design of the road will preserve much of the creek valleys, with their vegetation, and it may permit more extensive use of berms as a substitute for walls. The FHWA also will permit noise control funds to be used to soundproof nearby residences themselves; PennDOT has been cool to this idea, but it may be the best solution in certain situations (such as in Marple Township) where there are houses hard against the creek valleys and the path of the expressway.

Air pollution concerns have been thoroughly documented in the Consultation and Coordination Section of the final EIS, section IX, volume 2. The major concern related to the chemical reactions and dispersion potential of the new route. Positive effects might accrue from a smooth-flowing north-south route as opposed to the current traffic conditions in the corridor, characterized by congested "stop and go" traffic. There is some reason to believe that the Blue Route's freer-flowing traffic, suggested speed limits of 55-MPH, new emission control devices and more vehicles burning lead-free fuel will reduce the negative effects of the corridor's present engine-induced air pollution problems. Of course, these benefits would be lost if the facility generates enormous amounts of new traffic in the corridor. Elsewhere in this report it is suggested that the traffic volume projections used in the EIS are greatly exaggerated; if more manageable traffic forecasts are obtained, the predicted air pollution impacts will be reduced (as will be noise impacts).

3.3 Open Space and Parkland.

The I-476 corridor and the suburban communities west of the alignment have grown rapidly since World War II. Housing development still is taking place here, even though the Delaware County's population has been stable for nearly a decade. This can be explained by continued growth in numbers of households--the most important generator of residential development. This development has resulted in a great loss of "visual" open space in central and western Delaware County over the past three decades. Paradoxically, parkland acreage during this same period has increased dramatically in these same communities. I-476 encroaches on 59 acres of this dedicated parkland as currently planned; many more acres of parkland would be adversely affected by completion of the facility. This impact gives rise to much of the controversy surrounding the highway.

The 59 acres of parkland would be "functionally replaced" by PennDOT; that is, PennDOT financially compensates municipalities for the land taking and the municipality replaces the land according to its priorities. There is enough vacant land in the corridor to enable such replacement. However, most of the available land in the corridor lies within the same creek valleys that would be shared by the expressway. A massive 6+2 lane expressway built to PennDOT's rural specifications would so alter the character of these creek valleys, that "functional replacement" would be a myth and the remaining acreage in the creek valleys not directly taken would be rendered far less attractive as a recreational resource. The illustration below, cross section found in the EIS, graphically demonstrates how the current design would, in places, completely alter the creek valley:



Use of retaining walls, cuts, and fills in a creek valley setting, I-476. The creek would be channelized. Planned 8' concrete sound barriers not shown. (Recall that these valleys are wooded; this is not shown in the illustration).

The Committee believes that all possible measures must be taken to reduce such a drastic impact on the character of these creek valleys. The Committee feels that general preservation of the creek valleys, wherever they are encroached upon by I-476, is a more important environmental necessity than preserving 4(f) land (official, dedicated parkland) per se. PennDOT's legalistic approach--making minor adjustments in design to reduce impacts on formal 4(f) properties--is wholly unsatisfactory. As the Department of the Interior stated in June 1976, when commenting on the I-476 Draft EIS:

The parklands along these creeks, and adjoining public open space impacted by the proposed project, have a value to local and regional interests considerably greater than the sum of their individual areas. In this case, the synergistic value of public park, creek valley park, and open space corridor is the primary concern. That corridor has largely been dedicated, with plans for additional public ownership, for park and recreation purposes.

The Interior Department continues, "Corridor use for highway purposes would almost entirely negate its intended and dedicated use." Looking at PennDOT's design, such as that illustrated above, the Committee fully concurs with this view. But a workable alternative can be developed by scaling down the highway design especially south of U.S. 1 where the facility travels down the Crum Creek Valley. Here, a 2+2 lane design with extensive landscaping and, in general, parkway specifications* could--if done properly--greatly reduce the negative impacts of PennDOT's proposal. Indeed, a carefully-designed parkway-type facility here could actually increase the creek valley's value as an environmental asset for greater numbers of people in the County (who in large part currently have no access to the beautiful lower Crum Creek woodlands.)

In addition to the need for sensitivity along the Crum Creek Valley, the Committee recognizes the severe design problems encountered north of U.S. 1 in the vicinity of the Darby Creek Conservation Area (the border of Marple and Haverford Townships). This is a very steep creek valley with residential development hard against the cliffs; the design solution chosen spares houses but puts the highway in the middle of the creek. This is the point where the proposed Lansdowne Expressway would meet I-476; elimination of the Lansdowne Expressway (as recommended elsewhere in this report) and a general down-scaling of the design of I-476 should permit the development of a new design for this section that will be more sensitive to both the creek valley and residential areas of Marple Township.

*modified only as necessary to accommodate trucks, in that this is an Interstate facility. Most of the features of a parkway design could be retained.

3.4 Historical

The EIS exhaustively identifies the facility's impact on historical buildings along the corridor. Historic buildings are "non-renewable" resources, unlike housing (which, when taken, can be easily replaced); their preservation deserves the highest priority. The I-476 corridor may contain more historical structures for its length than any similar suburban corridor in the nation. This has made the 4(f) Statement for I-476 extremely complicated.

The Committee believes that, given the historical abundance of the Philadelphia region, it is important to focus attention on those properties in the corridor which have significant value relative to other historical resources available to the residents of the region. The major impacted resources in this case are, in our view:

- (1) The Thomas Leiper House (1785), including its out-buildings and the nearby site of a very early canal and railroad (all part of an 18th Century manorial-industrial community);
- (2) The Radnor Friends Meetinghouse area, from Conestoga Road to Lancaster Pike;
- (3) The Robert Taylor House-Brookethorpe area (along Darby Creek).

The Leiper site already has been damaged by PennDOT; several early stone and some frame houses were torn down, along with the barn and the Sunday School. At the insistence of historically-interested

groups, PennDOT did move the road to the west, saving the mansion. The design here must be further improved to avoid additional disruption of this site.

The Final EIS proposes measures to mitigate the harmful impact of I-476 on the Friends Meetinghouse area, but noise impact remains a serious problem. Mitigative measures must not only reduce noise but be aesthetically sensitive to this visually rich area.

The Taylor House is an attractive residence dating from 1709 which is saved in the latest alignment. Special design features will mitigate noise impacts.

I-476 crosses a major old Indian trail from the interior country to the Delaware River, known as the Minquas Path. The whole area could be archaeologically rich. The EIS proposes to consult archaeologists and to monitor road excavation as it proceeds. The Committee hopes that this will be done.

In many instances, further monitoring of the design will be necessary to ensure sensitivity to the historical resources of the corridor. The Committee urges particularly close monitoring of the design of the facility in the lower Crum Creek Valley, near the Thomas Leiper House.

3.5 Geological, Land Flooding, Erosion Impacts

There are three types of bedrock in the I-476 corridor. The Baltimore Gneiss is a tough, durable rock with high blasting costs. The existing roadcut on I-476 just south of the Schuylkill Expressway is in this rock unit. Steep slopes are possible because of its resistance to weathering; accordingly, a narrower right-of-way width is possible in roadcuts in this type of rock unit. A second widespread rock in the corridor, Granodiorite, is similar to the first in construction methods and costs.

On the other hand, the Wisahickon Schist, which is found in the Darby and Crum Creek valleys, presents difficulties. It is easier to excavate than the other two rock units but it is much more susceptible to weathering. Preferred construction practices would be to create gentler slopes in it so as to reduce rock slides from water-induced rotting. Efforts should be made to minimize intrusion into this type of bedrock.

The present plan proposes significant stream valley changes including encroachments on the creeks and floodplains. For 16.9 miles of the Blue Route (the section covered by the EIS) a combined total of 23,452 linear feet (approximately 4.5 miles) of creek relocations and culverts are required. At least ten bridges are needed for the crossing and re-crossing of the creeks. The Committee believes that these very high impacts should and can be significantly reduced.

Flooding would increase with the addition of a highway into the valleys; a road represents additional impervious surface, thus reducing storm-water absorption and increasing runoff. Water retention basins and

speedy revegetation will be needed to minimize these impacts; a scaling-down of the design also will greatly reduce the amount of impervious surface, preserving much of the natural ground in the corridor.

Increased erosion and sedimentation can be expected; the draft EIS indicates that the current plan would produce 2.1 million cubic yards of clean fill and generate 117,000 cubic yards of solid waste. Sedimentation would change the dynamics of the creeks, damage aquatic life, and increase downstream flooding. A scaled-down road design minimizing cuts and fills, together with clearly specified erosion and sedimentation control measures in both the construction and operating phases of the project, are necessary to mitigate these serious negative impacts.

3.6 Flora, Fauna, and Aquatic Biology

The Darby and Crum Creek valleys themselves have not been significantly urbanized in comparison with the uplands which separate the valleys. The valleys are the main reservoirs of the area's native vegetation and wildlife. The quality of the forest is particularly good in Smedley Park and down the Crum Creek valley. In bisecting these creek valleys, I-476 would cause a significant loss of vegetation (over 400,000 trees, according to the EIS) and attendant wildlife. Beyond the actual land take, the linear nature of the road would restrict wildlife movements.

The stream encroachments mentioned above signify major impacts on the existing aquatic life; the highway probably would reverse the ongoing recuperation of the now-degraded streams. The preservation of the nation's watercourses, to permit swimming and fishing, is a federal mandate; the highway design should be adjusted, in the construction and

operating phases, to reduce the biological stress on these creeks. As an example, trout fishing in Darby Creek near Brookethorpe Circle (stocked by the Pennsylvania Fish Commission) would almost certainly disappear if the creek is not handled very carefully. Further downstream, the waters are classified as moderately to grossly polluted, but conditions are improving. Because creek channelizations (in effect, paving the creek) greatly worsen the health of a stream, all such channelizations should be reduced to the full extent possible during redesign.

SECTION 4 THE COMMITTEE'S FINDINGS

The material presented in this section summarizes the Committee's findings on several basic issues relating to I-476. The findings presented here lead to the set of recommendations set forth in section 5.

4.1 Traffic Volume Projections

The traffic volume projections assigned to I-476 have a great bearing on this entire discussion because they largely control both the transportation and the environmental aspects of the planning effort. The Committee believes that DVRPC's traffic volume projections for I-476 are exaggerated and unrealistic, principally because an assumption has been made that, in the year 2000, I-476 will be "fed" by the Lansdowne Expressway and indirectly by several other proposed new freeways in the region. The Lansdowne Expressway is not part of the federal Interstate Highway System but it was planned as a state-financed highway that would link I-476 and the proposed Cobbs Creek Expressway (also an Interstate Highway). The Cobbs Creek project was dropped in 1973 under the federal "Interstate Transfer Program" but the Committee has been amazed to learn that the project never has been dropped from the regional highway program. Without Cobbs Creek, the Lansdowne Expressway is infeasible; both projects should be dropped officially, leaving I-476 as part of a much more modest regional freeway network.

4.2 Physical Design Features of I-476

As proposed, I-476 would be designed with six lanes of traffic (three lanes in each direction) with ten-foot paved exterior and interior shoulders in each direction, *plus* a twenty-five foot grass median. The total right-of-way width will range between 314 and 700 feet. This huge scale is based on two factors: (1) PennDOT's use of Rural Design Criteria, and (2) DVRPC's inflated traffic volume projections, which have led to the planning of the large median, intended for two future lanes of traffic.

The Committee finds PennDOT's design of I-476 inconsistent with the character of the urban stream valley corridor. Use of more suitable cross section elements, PennDOT's urban/suburban design criteria, extensive environmental protection measures, and full landscaping will permit construction of a facility that is more compatible with both the natural and man-made environment of Delaware County. Urban/suburban design criteria are more directed toward the nationally-mandated 55-MPH speed limit, thus permitting tighter turns, somewhat steeper grades, fewer elevated structures, less earthmoving during construction, and more flexibility in alignment. A scaled-down design also will reduce the cost of the facility, shorten PennDOT's currently-planned ten year construction schedule, and reduce environmental upheaval.

4.3 Cost Feasibility

As an Interstate Highway project, 90% of the cost of the Blue Route will be paid for out of the Interstate Highway Program allocation that PennDOT receives each year from the Federal Highway Administration. The remaining 10% of the project's cost will be paid for by State funds. The availability of the federal funding is not an issue; passage of the "Surface Transportation Assistance Act of 1978" (P.L. 95-599) gives the Interstate Highway Program enough long-term authority to assure completion of this project. At present, Pennsylvania has not allocated funds for its 10% share of the cost. The revenues now going into the State Motor Fund are being used exclusively for debt reduction, State Police, local road repair, and maintenance of State highways. Most "new construction" projects have been halted. As a result, most of the various highway program allocations PennDOT receives from the federal government are going unused.

The Blue Route will not be constructed until the State makes available its 10% share of the cost. Conceivably, PennDOT could raise the 10% through a bond issue but recent State policy has discouraged bonding and encouraged a "pay as you go" procedure in highway construction financing. For the State to "pay as you go" in this case, it must either (1) increase revenues going into the State Motor Fund, or (2) "liberate" money for new construction by shifting expenditures within the total amount of money now made available by the Fund.

4.4 Role of I-476 in the Regional Transportation System

I-476 is intended to improve north-south transportation in the western suburbs; PennDOT describes a dual role for the facility: to serve local traffic by providing a new north-south connection between the several major east-west roads that fan out from the City, and to serve longer distance trips in and through the region. The selected corridor provides improved access to four major commercial and employment subcenters that have grown in the western suburbs over the past several decades:

- 1) Chester and the Delaware River Waterfront (I-95, with connection to the airport);
- 2) Springfield and Media (Baltimore Pike, along which are the largest commercial and office complexes in Delaware County);
- 3) The Radnor/St. Davids area, a growing office and commercial center; and
- 4) The King of Prussia/Valley Forge area (I-76), site of extensive commercial, office, and light industrial development.

In addition to providing new access to these "magnet" areas in the western suburbs, I-476--by crossing the Schuylkill River and connecting with I-276--will serve to connect Philadelphia's western suburbs with its northern suburbs, which have their own commercial, office, and industrial concentrations. Heretofore, the Schuylkill River Valley has been a formidable obstacle to transportation between the western and northern suburbs.

No single road currently connects all of these regional subcenters. In the western suburbs, the primary north-south highway is PA. 320, a two-lane roadway which passes through long-developed communities. Opportunities for making major improvements to the capacity of PA. 320 are very limited.

Two other roads, PA 420 and PA 252, roughly parallel the I-476 alignment in populous southern Delaware County. These are two-lane roadways like PA 320, and major widening projects would be quite expensive and disruptive.

I-476 is likely to cause additional congestion on several important east-west arterial highways, a side-effect that reduces the facility's overall worth as a transportation investment. However, this negative impact can be avoided in large part if PennDOT and appropriate county and regional officials make use of various non-Interstate federal highway allocations to improve the capacity of these east-west highways. In many instances, major intersections along Lancaster Pike (US 30), Baltimore Pike, MacDade Boulevard and so forth have never been channelized and traffic signals have not been properly synchronized.

An additional negative transportation impact of I-476--that of increasing auto usage in general and automotive commuting (via I-95) to central Philadelphia in particular--also can be avoided if the design of the road is tied into the corridor's extensive public transportation resources. If this turns out to be inadequate to prevent use of the I-476/I-95 routing by commuters bound for

Center City, policy makers can implement a variety of auto-disincentive strategies to minimize use of I-95 by rush hour commuters. Parking surcharges during the morning entry hours downtown are an example of the kinds of policies that can be used if policy makers are serious about promoting the use of public transportation.

4.5 Impact of I-476 on Community and Economic Development

I-476 is a major transportation investment and because federal funds are specifically set aside for this investment, it is easy to go after these funds without considering the impacts that the facility is likely to have on overall urban development. The Blue Route will affect the areawide housing market, its economy, parks and recreational resources, historical resources, and so forth.

The Committee finds that I-476, if properly designed, will contribute to sound urban development. Housing values in central Delaware County should be stimulated by the road's completion (see section 3.1). Regional access to a number of growing employment subcenters in the western suburbs will be increased. The chosen corridor avoids significant disruption of the man-made environment and, at the same time, passes through an area with little land remaining for new development. This means that the highway will not create massive "urban sprawl" pressures, unlike many freeway facilities of its type. On the minus side, use of stream valleys for this highway detracts from the area's open space and recreational resources and from the potential expansion of these resources. This negative side effect, in the Committee's view, can only be avoided if a parkway-type design is used, one that will make use of, rather than detract from, the considerable natural beauty of the stream valleys, particularly the Crum Creek Woodlands.*

* It is somewhat ironic but true that the Blue Route has saved much forested land from development; PennDOT has held the right-of-way for years.

In terms of economic development, completion of the Blue Route will have a positive "one shot" economic impact through construction. Beyond this, the road's presence is likely to reallocate jobs within the region to some extent (to the corridor's benefit), but it is unlikely to create jobs within the region or draw outside concerns into the region.

4.6 The Trade-offs between Transportation, Economic, and Environmental Impacts

The Committee believes that completion of I-476 will provide significant transportation and community development benefits if the road is substantially redesigned. Under any plan, this freeway will disrupt the environment of the Crum Creek and Darby Creek valleys, both of which thus far principally have been reserved for public recreation. To a great extent, these creek valleys are non-renewable resources and their preservation is essential to the balanced growth of the County.

The design modifications suggested in this report should result in a project that is more sensitive to the creek valleys while maintaining (and even enhancing) the value of the project as a transportation investment. Without the modifications we suggest, such a cost-benefit calculation becomes a much closer call; many members of the Committee, in fact, would not recommend proceeding with PennDOT's design if that were the only option.

SECTION 5: THE COMMITTEE'S RECOMMENDATIONS

5.1 Secretary's Decision

The Committee recommends that, in a formal decision, the Secretary of Transportation commit himself in principle to approval of I-476 if design modifications are made. The intent of the modifications should be stated as, (1) better coordination of the freeway with existing transportation in the corridor, particularly public transit; and (2) reduction of the present design's harmful impacts on the natural features of the corridor.

5.2 Traffic Volume Projections

The committee recommends that the FHWA and PennDOT obtain new traffic volume projections for I-476 as quickly as possible. The Delaware Valley Regional Planning Commission is responsible for providing these data. The new projections must be based on a more realistic model incorporating (insofar as is practicable) DVRPC's latest planning elements for the year 2000. The projected freeway network must be much more modest than the previously-used 1985 freeway network; in addition to I-476, the network should include only those freeways that are operational today plus those freeway projects that are actually on the region's intermediate-range highway improvement program.

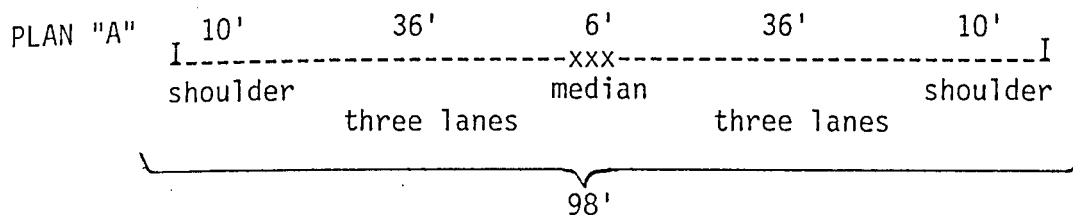
5.3 Peak Hour Design Factors

The Committee recommends that the peak hour design factors used in the I-476 planning effort be adjusted to resemble the actual operating experiences of other roads in the area and to reflect the anticipated year 2000 conditions.*

*see section 2.2, final paragraph

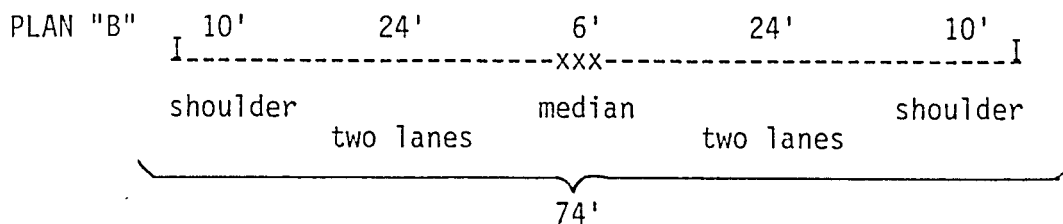
5.4 Cross Section Elements (Including Number of Lanes)

The Committee recommends that the currently-planned right-of-way for I-476 be substantially narrowed in width. In a stream valley condition, the following cross section would be the appropriate design if traffic volume forecasts show a need for six lanes of traffic:



This design keeps six lanes of traffic but eliminates the paved median shoulders and most of the median itself (PennDOT's median width is 25', intended for two future lanes of traffic).

A more modest design than that illustrated above (Plan "A") is recommended if the revised traffic volume projections permit. The Committee prefers to see the following cross section elements used on all sections where operationally feasible



Plan "A" above represents a net saving of 39' over the present design; Plan "B" a net saving of 63'. Both savings are expressed in terms of the roadway itself; the savings in fact will be substantially compounded by the reduced need for cuts and fills of the corridor. Illustrations will be provided by the Committee to the Department of Transportation

to show a landscape cross section of the current design compared to Plans "A" and "B" above. Either of the two alternatives the Committee presents will save a good portion of the wooded creek valleys.

5.5 Design Standards

Because the currently-planned rural design standards are inappropriate for the design of I-476, PennDOT's own urban/suburban standards should be used. The gradient can be steeper (4% or 5% instead of 3%) and the horizontal curvature sharper (maximum 5° instead of 3° 30') if the urban/suburban standards are used. This will further reduce the need for earthmoving, leaving the creek valleys in a more natural and attractive state. The change also will reduce design speeds from the current 70-MPH to a 60-MPH design speed, which is more appropriate to 55-MPH driving speeds (the national limit).

5.6 Interchanges

In general the Committee recommends use of urban-type diamond interchanges instead of cloverleafs; these are more appropriate to the streets that interface with I-476 and the land-taking impacts of cloverleafs will be greatly reduced.

To make specific suggestions, the Committee requires more detail on the current interchange plans; for example, the plans should include elevations for the interchanges and the main line roadways. These were not found in the EIS.

The Committee recommends that PennDOT consider adding simple interchanges at Bryn Mawr Avenue and Darby Road; these should be tested in the network to see if relief can be provided to the U.S. 30 interchange. The Committee recommends close coordination of these plans with local government, business, and civic groups in the Radnor

area; solutions to the very real problem of congestion at the U.S. 30 area must be found, but they must not be forced on the community.

The Committee recommends that PennDOT seriously consider altering the design of the Sproul Road interchange near Cardinal O'Hara High School in Marple Township to permit northbound entry onto I-476 by vehicles travelling north on Springfield Road. This change is desirable because of the deletion of the Lansdowne Expressway from the network.

5.7 Landscaping and Aesthetics

Former Pennsylvania Highways Secretary Harry Harral intended I-476 to be a "Showcase" highway with extensive landscaping, stone facings on certain bridges, rustic "street furniture" (such as graphics and guard rails) and so forth. It is unclear how many of these things are incorporated into the present design.

The Committee strongly urges that the "Showcase" idea be preserved; it will cost more, but the scaled-down design the committee suggests will reduce many of the construction costs and thus enable funding of a more generous landscaping plan. The Committee would like to see the design of I-476 resemble a parkway in all ways possible, with careful attention paid to visual opportunities afforded by the topography; the parkway concept should be modified only as necessary to accommodate trucks and to meet the basic urban/suburban design criteria described above. A special effort should be made to use materials native to or characteristic of eastern Pennsylvania.

5.8 Coordination with Public Transportation

The Committee recommends that regional fringe parking facilities proposed in the corridor be directly connected to I-476 if at all possible.

This is especially important for the proposed Radnor parking facility, which will serve both the Paoli commuter rail line and the Norristown High-Speed Line. The idea of providing a new station and parking facility at the junction of I-476 and the Media commuter rail line should be actively explored; as this is a sensitive creek valley setting, special attention will have to be paid to the design (a mall-sized parking lot with harsh lighting will not work here; a modest-sized facility with abundant landscaping, rustic design, and special lighting solutions might work very well). The Committee believes that the parking facility proposed for Crum Lynne, serving the Chester/Wilmington commuter rail line, should be connected to I-95 if possible and reduced in size if only local commuter service is to be served. As this line is also the main Amtrak New York-Washington line, however, a new station here might also serve intercity trains much as the Metropark station in Northern New Jersey does. The Committee recommends that the Secretary of Transportation instruct his Region III (Philadelphia) Representative to explore this issue with SEPTA, Amtrak, the Federal Railroad Administration, and PennDOT. As an alternative to the Crum Lynne plan, the Secretarial Representative also should examine the possibility of modifying the design of I-95 in the Eastwick area to permit direct connection to a park-and-ride lot serving the new Airport Hi-Speed Line. Such a facility could significantly expand the Airport Line's zone of service; the I-476/I-95 junction is only five minutes west of the site. (A park-and-ride lot serving the Airport Line, it is emphasized, would not also serve the airport; they would be physically separated by up to one mile and the pricing policies of the park-and-ride lot would be low so as to encourage the intermodal transfer. Parking policies at the airport itself, however, favor high tariffs.)

The Committee further recommends that pull-over areas for bus stops be incorporated into the design of I-476 at strategic locations, in consultation with SEPTA. Appropriate grade-separated pedestrian walkways, either under or over the road, must be constructed at all such bus stops.

5.9 Coordination with Pedestrian Needs

The Committee recommends that PennDOT closely review the final design with the Delaware County Planning Department to assure that the roadway does not isolate parts of communities from parks and recreational resources, from other residential areas, and so forth.

5.10 Coordination with Other Highway Improvements

Delaware and Montgomery County officials, working with PennDOT and the DVRPC, should earmark federal primary and federal urban highway allocations for projects that will improve the capacity of arterial roadways affected by interchanges with I-476. TOPICS and TSM improvements* will be needed along these roadways. Special attention must be paid to congestion problems on Lancaster Pike (U.S. 30) and Baltimore Pike.

5.11 Construction Phasing and Detours

PennDOT has estimated that the current design will require a ten-year construction period; the Committee urges that this be shortened. PennDOT should consider exercising its option to borrow against future Interstate apportionments in order to speed completion. The Committee also recommends that PennDOT reassess all planned construction detours, in cooperation with Delaware and Montgomery Counties. (For instance, present

*such as single and double left-hand turn lanes, better management of traffic signals, and so forth.

plans to close the Media By-Pass for six months during completion of the I-476 interchange would cause tremendous community disruption, and must be reassessed. Night construction should be employed if necessary to avoid such a closing).

5.12 Severed Parcels and Preservation of Woodlands

The scaled-down design suggested by the Committee will preserve much creek valley woodland; ideally, those sections between the roadway and the creeks should be acquired and preserved, but Pennsylvania law prohibits acquisition of more land than is needed for the highway project itself. At the time, this was an anti-corruption measure to prevent highway officials from reaping the benefits of highway land speculation; in this case, it stands in the way of a unique opportunity to jointly develop the corridor for highway and recreational use. Pennsylvania state legislators from Delaware County may wish to consider special legislation permitting the I-476 project to be defined in such a way as to enable joint highway/recreational development of the corridor (a true parkway concept). Such an action, in the Committee's view, is not inherently necessary to make the I-476 project workable, but special efforts to preserve the woodlands and provide for hiking trails, picnic areas, and so forth should--at the very least--be explored by appropriate State officials.

5.13 Construction Management

The Committee recommends that the FHWA instruct PennDOT to perform all construction work within the legal right-of-way, without use of special construction easements. This will prevent environmental degradation of border areas not treated in the EIS.

5.14 Revision of the Design and EIS

The redesign suggested by the Committee must be closely monitored by the Secretary of Transportation; the Committee suggests that a special Design Advisory Committee be organized. One-half of the members could be appointed by the Secretary of PennDOT and one-half by the U.S. Secretary of Transportation. Whatever institutional arrangement is found, it is most important that the spirit of the recommendations made herein be adhered to; the Committee does not want to see minimal, legalistic manipulation of the present design as the response to this report. Substantial redesign is needed to mitigate harmful environmental impacts and to improve intermodal coordination. Substantial redesign also may be a legal necessity (see appendix).

The revision of the design, especially the attendant revision of the traffic volume forecasts, will necessitate amendment of a considerable amount of data in the EIS. The Committee believes that amendment of the final EIS will be all that is needed, rather than completion of an entirely new EIS. This should be done on an expedited basis, under a predetermined schedule. The redesign and EIS amendment should not take more than six to nine months in the Committee's view. The Secretary of Transportation should hold PennDOT to this schedule. Any further delay will have a serious, negative impact on construction costs.

While the EIS revision and redesign suggested by the Committee probably will result in the loss of one construction season, the scaled-down facility suggested by the Committee can be built in a shorter time. In addition, the scaled-down facility will be much less susceptible to delays stemming from civil action. All things considered, the Committee

believes that I-476 will be completed and opened to traffic sooner if the modifications suggested in this report are adopted, despite a possible delay in the start-up of construction.

A P P E N D I X

IMPORTANT FEDERAL STATUTES AFFECTING I-476

A. Protection of Public Parkland and Historical Sites

49 U.S.C. 1653(f) (otherwise known as Section 4f of the Department of Transportation Act):

...after the effective date of the Federal-Aid Highway Act of 1968, the Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park...or any land from an historic site of national, State, or local significance...unless

(1) there is no feasible and prudent alternative to the use of such land, and

(2) such program includes all possible planning to minimize harm to such park or historic site...

COMMENT: This is the major hurdle facing the Blue Route. First, PennDOT must demonstrate that there is no "feasible and prudent alternative" to taking public parkland for the project. The Department of the Interior's comments on the I-476 Draft EIS (June 28, 1976) are very damaging in this respect; DOI recited data in the EIS showing that the Blue Route will be at "jam" conditions and that traffic conditions under "No Build" alternative will not be markedly different from "Build." "On this basis," they said, "we find that the No Build alternative, defined in terms of traffic flows and congestion, is a feasible and prudent alternative to the use of public parkland for this project." To protect itself from damaging statements like this one, which are fodder for law suits, PennDOT must prove that the Blue Route is a necessary transportation investment--something the EIS fails to do convincingly. In addition, PennDOT also must show, under subparagraph (2) of section 4(f), that all possible planning to minimize harm to parks has been undertaken. In this score, failure to consider modified and scaled-down designs is very serious. PennDOT has considered minor modifications in interchange design, but is this adequate to meet the "all possible planning" test?

B. Environmental Protection

42 U.S.C. 4321-43 (National Environmental Policy Act of 1969) general policy statements:

Sec. 101(b) It is the continuing responsibility of the Federal government to use all practical means..to improve and coordinate Federal resources to the end that the nation may..preserve important historic, cultural, and natural aspects of our national heritage.

Sec. 101(a) It is the continuing policy of the Federal government to use all practicable means and measures, including financial and technical assistance...to create conditions under which man and nature can exist in productive harmony.

Requirement for environmental impact analyses: Section 102

..The Congress directs that...all agencies of the Federal Government shall--

..(C) include in every recommendation or report for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--

- (i) the environmental impact of the proposed action,*
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,*
- (iii) alternatives to the proposed action, etc.*

Requirement that highway project decisions take environmental issues into consideration: 23 U.S.C. 109(h)

..The Secretary shall promulgate guidelines designed to assure that possible adverse economic, social, and environmental effects relating to any proposed project on any Federal-aid system have been fully considered in developing such project...

and that the final decisions on the project are made in the best overall public interest taking into consideration the need for fast, safe, and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects and the following:

- (1) air, noise, and water pollution;*
- (2) destruction or disruption of man-made and natural resources, aesthetic values, community cohesion, and the availability of public facilities and services;*

- (3) *adverse employment effects and tax and property value losses;*
- (4) *injurious displacement of people, businesses, and farms; and*
- (5) *disruption of desirable community and regional growth.*

COMMENT: Together, these statutory provisions form a body of law directing the Secretary of Transportation to consider various environmental impacts before approving highway projects. The lengthy and cumbersome EIS process stems from these statutes. PennDOT must conform to guidelines governing this process. The question is, "Are these requirements restricted to process?" If you can show that this environmental assessment process was carried out thoroughly, has the test been met even though the conclusion might be to ignore certain environmental impacts by going ahead with the project? The Committee believes that in considering a Federal action of this magnitude, the Secretary of Transportation has a clear responsibility to require more than process; he must use "all practical means" to reduce predicted environmental impacts by providing technical assistance to the project sponsor.

The question will be, "Has the Secretary done enough to minimize anticipated impacts?" This will be judged not by the length of the environmental review process, nor by the bulk of the documents produced over the past few years. We believe that PennDOT must show signs that substantive revisions have been made to mitigate adverse environmental impacts and that the Secretary must provide all necessary technical assistance. If this is not done, the project could be considered in violation of these statutes.

C. Interstate Standards

23 U.S.C. 109(b)

(the Secretary shall develop standards..) adequate to enable such project to accommodate the types and volumes of traffic anticipated for such project for the twenty year period commencing on the date of approval by the Secretary...such standards shall in all cases provide for at least four lanes of traffic..

also 109(a)

The Secretary shall not approve any plans...for proposed projects on any Federal-aid system if they fail to provide for a facility--(1) that will adequately meet the existing and probable future traffic needs and conditions in a

manner conducive to safety, durability, and economy of maintenance; and (2) that will be designed and constructed in accordance with standards best suited to accomplish the foregoing objectives and to conform to the particular needs of each locality.

COMMENT: Standing alongside various environmental requirements are these requirements that the project be adequate to meet anticipated traffic needs. Since the DVRPC has provided PennDOT with traffic volume projections that are extremely high (see Section 2 of the report), PennDOT has reacted by designing a facility with a potential for eight lanes of traffic. The pressure for the extra lanes derives from these two sections of law, but note the condition in 109(a) that the standards are meant to "conform to the particular needs of each locality" in addition to the area's traffic needs. This invites flexible design approaches. Still, it is very important for DVRPC to correct its traffic forecasting models and to provide PennDOT with new estimates so that, if PennDOT reduces the scale of the facility, there will be no question of non-compliance with section 109 of Title 23.

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